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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,333	01/26/2004	Sung-Han Jung	0630-1942P	6966
2292	7590	09/07/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			HINES, ANNE M	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/763,333	Applicant(s) JUNG, SUNG-HAN	
	Examiner Anne M. Hines	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-12 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 1-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to because in figures 6-12 the plotted line that corresponds to each of the shown equations is not distinguishable since the style of the lines is identical. Additionally, in figures 6-12 a foreign character appears within the bracketed text on the lower right hand portion of the figures. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because on page 3, lines 18-19 the phrase "an aspect ratio of an effective surface (U) of the panel is 4:3, a diagonal size of the effective surface is..." is unclear because the variable U appears to refer to the effective surface instead of the diagonal size of the effective surface as shown in Figure 3. This error appears throughout the specification, applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 1, 4, 7, and 10 are objected to because of the following informalities: The natural log operation can only be performed on unitless numbers. However, in the equations of these claims, the natural log of U is taken wherein U has units of mm. Additionally, units are not provided for the constants added to either side of the inequalities. Units are required for all constants (excepting multiplicative constants) or variables appearing in an equation. If a constant or variable is unitless or treated as unitless in an equation this must be indicated. Appropriate correction is required.

Claims 1, 7, 10 are objected to because of the following informalities: In the phrase "...wherein an aspect ratio of an effective surface (U) of the panel is 4:3, a diagonal size of the effective surface is..." is unclear because the variable U appears to refer to the effective surface instead of the diagonal size of the effective surface as shown in Figure 3. Appropriate correction is required.

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Claims 1, 4, 7, and 10 are objected to because of the following informalities: In the phrase "...and the thickness of the center point of the panel 100 is Tc" is improper because the reference number 100 is required to be in parenthesis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokita (US Pat. No. 4,537,321) and further in view of Lee (US 2003/0122474) and Okada et al. ().

Tokita teaches a color CRT having a panel of which outer surface is substantially flat (Column 2, lines 20-22) and inner surface has a predetermined curvature and a funnel coupled to a rear side of the panel (Fig. 4), wherein an aspect ratio of an effective surface of the panel is 4:3 (Fig. 5; Column 6, lines 49-56), a diagonal size (U) of the effective surface is 657 mm (Fig. 5; Column 6, lines 49-56), and the curvatures of the inner surface are: Rx=1550 mm, Ry=1300 mm, Rd=1450 mm (Fig. 5; Column 6, lines 49-56), and the lengths of the effective surface are: Lx=525.6 mm, Ly=394.2 mm, Ld=657 mm (Fig. 5; Column 6, lines 49-56). Tokita fails to teach the thickness of the center of the panel. However, the range of thicknesses that places the panel of Tokita

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within in the specifications of claim 1 is: 15-17.8mm. Lee teaches a panel with a center thickness of 19 mm (Page 5, Table 2) and Okada teaches a panel with a center thickness of 12 mm (Column 6, line 56). Lee teaches reducing the thickness of the panel in order to reduce the weight and increase the transmittance of the panel (Page 5, Paragraph [0080]). Okada teaches that the thickness of the panel is a significant factor in preventing implosion (Column 4, lines 6-11). Therefore it would have been obvious to one of ordinary skill in the art to modify the panel of Tokita to have a center thickness in the range of 15-17.8mm, as disclosed by Okada and Lee, in order to reduce the weight of the panel, increase the transmittance, and reduce the risk of implosion.

Allowable Subject Matter

Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 2, and specifically comprising the limitation wherein the thickness of the center point of the panel is in the range of 10-12.4mm.

Regarding claim 3, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 3, and specifically comprising the limitation wherein the following condition is satisfied:

$0.0875 \cdot \ln(U) - 0.4192 \leq OAH/U \leq 0.0981 \cdot \ln(U) - 0.4753$, and a tube axis directional distance from the center of the outer surface of the panel to a seal edge line is OAH and a diagonal size of the effective surface is U.

Claims 4, 7, and 10 would be allowable if rewritten or amended to overcome the objection (s) set forth in this Office action.

Regarding claim 4, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 4, and specifically comprising the limitation:

$$-2.1319 \cdot \ln(U) + 14.589 \leq ((Rh \cdot Rv \cdot Ro)/U) \cdot Tc \leq -2.5462 \cdot \ln(u) + 17.414$$

Regarding claims 5 and 6, claims 5 and 6 are allowable for the reasons given in claim 4 because of their dependency status from claim 4.

Regarding claim 7, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation:

$$-0.8629 \cdot \ln(U) + 5.6754 \leq (Rh \cdot Rv \cdot Ro)/U \cdot Tc \leq -1.0547 \cdot \ln(U) + 6.9366$$

Regarding claims 8 and 9, claims 8 and 9 are allowable for the reasons given in claim 7 because of their dependency status from claim 7.

Regarding claim 10, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 10, and specifically comprising the limitation

$$-17.746 \cdot \ln(U) + 116.49 \leq ((Rh \cdot Rv \cdot Ro)/U) \cdot Tc \leq -20.322 \cdot \ln(U) + 133.45$$

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Regarding claims 11 and 12, claims 11 and 12 are allowable for the reasons given in claim 10 because of their dependency status from claim 10.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wakasono et al.	US Pat. No. 5,155,410
Wakasono	US Pat. No. 6,157,124
Nishizawa et al.	US Pat. No. 6,555,953
Baek et al.	US 2004/0239232

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines
Patent Examiner
Art Unit 2879

Amtt
8/30/05

CSH 9/1/05
MARICELI SANTIAGO
PRIMARY EXAMINER